

Mr. Robert W. Warner  
Astral Industries, Inc.  
P.O. Box 638  
Lynn, Indiana 47355

Re: Significant Source Modification No:  
135-11624-00002

Dear Mr. Warner:

Astral Industries, Inc., applied for a Part 70 operating permit on January 12, 1997, for a burial casket manufacturing operation. An application to modify the source was received on December 9, 1999. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

- (a) one (1) natural gas fired boiler with a maximum heat input capacity of 15 million British thermal units per hour (MMBtu/hr) exhausting to stack S10;
- (b) eight (8) natural gas fired radiant heaters with a maximum heat input capacity of 0.12 million British thermal units per hour (MMBtu/hr), each;
- (c) twelve (12) natural gas fired radiant heaters with a maximum heat input capacity of 0.10 million British thermal units per hour (MMBtu/hr), each; and
- (d) a casket assembly and powder coating operation with a maximum average throughput of 120 caskets per hour and consisting of the following emission units:
  - (1) four (4) metal inert gas (MIG) weld stations using a maximum of 30.1 pounds of wire per hour,
  - (2) grinding and sanding operations for welding touch up,
  - (3) one (1) natural gas fired oven, designated the Dry-off Oven, with a maximum heat input capacity of 4.4 million British thermal units per hour (MMBtu/hr) exhausting to stack S3,
  - (4) one (1) manual powder coat booth designated the Versa Coat Booth with dry filters for particulate matter control,
  - (5) two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with integral dry filters for particulate matter control,

- (6) one (1) natural gas fired oven, designated the Quiet Oven, with a maximum heat input capacity of 8.8 million British thermal units per hour (MMBtu/hr) exhausting to stack S4,
  - (7) one (1) natural gas fired oven, designated the Bake Oven, with a maximum heat input capacity of 5.6 million British thermal units per hour (MMBtu/hr) exhausting to stack S5,
  - (8) a bed and interior assembly area with adhesive and silk screening application,
  - (9) one (1) air conditioner with an integral heating unit fired by natural gas which has a maximum heat input capacity of 560,000 Btu/hr exhausting to Stack 11, and
  - (10) one (1) humidifier fired by natural gas with a maximum heat input capacity of 476,000 Btu/hr exhausting to Stack 12.
- (e) one (1) evaporator unit fired by natural gas with a maximum heat input capacity of 100,000 Btu/hr exhausting to Stack 13.
  - (f) one (1) hook burn-off oven fired by natural gas with a maximum heat input capacity of 1,000,000 Btu/hr exhausting to Stack 14.

The proposed Significant Source Modification approval will be incorporated into the pending Part 70 permit application pursuant to 326 IAC 2-7-10.5(l)(3). If there are no changes to the proposed construction of the emission units, the source may begin operating on the date that IDEM receives an affidavit of construction pursuant to 326 IAC 2-7-10.5(h). If there are any changes to the proposed construction the source can not operate until an Operation Permit Validation Letter is issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call Janusz Johnson at (800) 451-6027, press 0 and ask for extension 2-8325, or dial (317) 232-8325.

Sincerely,

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Management

Attachments

JKJ

cc: File - Randolph County  
U.S. EPA, Region V  
Randolph County Health Department  
Air Compliance Section Inspector - Warren Greiling  
Compliance Data Section - Karen Nowak  
Administrative and Development - Janet Mobley  
Technical Support and Modeling - Michele Boner

# **PART 70 SIGNIFICANT SOURCE MODIFICATION OFFICE OF AIR MANAGEMENT**

**Astral Industries, Inc.  
7375 South U.S. Highway 27  
Lynn, Indiana 47355**

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Source Modification No.: 135-11624-00002	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

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## SECTION A

## SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the emission units contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

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The Permittee owns and operates a burial casket manufacturing operation.

Responsible Official: Charles B. Shaw  
Source Address: 7375 S. US 27, Lynn, IN 47355  
Mailing Address: P.O. Box 638, Lynn, Indiana 47355  
Phone Number: (765) 874-2525  
SIC Code: 3995  
County Location: Randolph  
County Status: Attainment for all criteria pollutants  
Source Status: Part 70 Permit Program  
Major Source, under PSD Rules;  
Major Source, Section 112 of the Clean Air Act

### A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

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This stationary source is approved to construct and operate the following emission units and pollution control devices:

- (a) one (1) natural gas fired boiler with a maximum heat input capacity of 15 million British thermal units per hour (MMBtu/hr) exhausting to stack S10;
- (b) eight (8) natural gas fired radiant heaters with a maximum heat input capacity of 0.12 million British thermal units per hour (MMBtu/hr), each;
- (c) twelve (12) natural gas fired radiant heaters with a maximum heat input capacity of 0.10 million British thermal units per hour (MMBtu/hr), each; and
- (d) a casket assembly and powder coating operation with a maximum average throughput of 120 caskets per hour and consisting of the following emission units:
  - (1) four (4) metal inert gas (MIG) weld stations using a maximum of 30.1 pounds of wire per hour,
  - (2) grinding and sanding operations for welding touch up,
  - (3) one (1) natural gas fired oven, designated the Dry-off Oven, with a maximum heat input capacity of 4.4 million British thermal units per hour (MMBtu/hr) exhausting to stack S3,
  - (4) one (1) manual powder coat booth designated the Versa Coat Booth with dry filters for particulate matter control,

- (5) two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with integral dry filters for particulate matter control,
  - (6) one (1) natural gas fired oven, designated the Quiet Oven, with a maximum heat input capacity of 8.8 million British thermal units per hour (MMBtu/hr) exhausting to stack S4,
  - (7) one (1) natural gas fired oven, designated the Bake Oven, with a maximum heat input capacity of 5.6 million British thermal units per hour (MMBtu/hr) exhausting to stack S5,
  - (8) a bed and interior assembly area with adhesive and silk screening application,
  - (9) one (1) air conditioner with an integral heating unit fired by natural gas which has a maximum heat input capacity of 560,000 Btu/hr exhausting to Stack 11, and
  - (10) one (1) humidifier fired by natural gas with a maximum heat input capacity of 476,000 Btu/hr exhausting to Stack 12.
- (e) one (1) evaporator unit fired by natural gas with a maximum heat input capacity of 100,000 Btu/hr exhausting to Stack 13.
- (f) one (1) hook burn-off oven fired by natural gas with a maximum heat input capacity of 1,000,000 Btu/hr exhausting to Stack 14.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because it is a major source, as defined in 326 IAC 2-7-1(22).

## **SECTION B                      GENERAL CONSTRUCTION CONDITIONS**

### **B.1      Permit No Defense [IC 13]**

This approval to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

### **B.2      Definitions [326 IAC 2-7-1]**

Terms in this approval shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in IC 13-11, 326 IAC 1-2 and 326 IAC 2-7 shall prevail.

### **B.3      Effective Date of the Permit [IC13-15-5-3]**

Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

### **B.4      Revocation of Permits [326 IAC 2-1.1-9(5)][326 IAC 2-7-10.5(i)]**

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

### **B.5      Significant Source Modification [326 IAC 2-7-10.5(h)]**

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.
- (b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.
- (c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
- (d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
- (e) However, in the event that the Title V application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:
  - (1) If the Title V draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Title V draft.

- (2) If the Title V permit has gone thru final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go thru a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Title V permit at the time of issuance.
- (3) If the Title V permit has not gone thru final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Title V permit, and the Title V permit will issued after EPA review.



## SECTION C GENERAL OPERATION CONDITIONS

### C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

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- (a) Where specifically designated by this approval or required by an applicable requirement, any application form, report, or compliance certification submitted under this approval shall contain certification by a responsible official of truth, accuracy, and completeness. This certification, shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, on the attached Certification Form, with each submittal.
- (c) A responsible official is defined at 326 IAC 2-7-1(34).

### C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

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- (a) If required by specific condition(s) in Section D of this approval, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after issuance of this approval, including the following information on each facility:
  - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
  - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;
  - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond its control, the PMP cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

- (b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) PMP's shall be submitted to IDEM, OAM, upon request and shall be subject to review and approval by IDEM, OAM. IDEM, OAM, may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.

### C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

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- (a) The Permittee must comply with the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this approval.
- (b) Any application requesting an amendment or modification of this approval shall be submitted to:  
  
Indiana Department of Environmental Management  
Permits Branch, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015  
  
Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34) only if a certification is required by the terms of the applicable rule
- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

**C.4 Opacity [326 IAC 5-1]**

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Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this approval:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

**C.5 Operation of Equipment [326 IAC 2-7-6(6)]**

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Except as otherwise provided in this approval, all air pollution control equipment listed in this approval and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

**Testing Requirements [326 IAC 2-7-6(1)]**

**C.6 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]**

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- (a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAM.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

- (b) All test reports must be received by IDEM, OAM, within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAM, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

#### **Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]**

##### **C.7 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]**

Compliance with applicable requirements shall be documented as required by this approval. All monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of approval issuance. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

#### **Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]**

##### **C.8 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5][326 IAC 2-7-6] [326 IAC 1-6]**

- (a) The Permittee is required to implement a compliance monitoring plan to ensure that reasonable information is available to evaluate its continuous compliance with applicable requirements. This compliance monitoring plan is comprised of:

- (1) This condition;
  - (2) The Compliance Determination Requirements in Section D of this approval;
  - (3) The Compliance Monitoring Requirements in Section D of this approval;
  - (4) The Record Keeping and Reporting Requirements in Section C (Monitoring Data Availability, General Record Keeping Requirements, and General Reporting Requirements) and in Section D of this approval; and
  - (5) A Compliance Response Plan (CRP) for each compliance monitoring condition of this approval. CRP's shall be submitted to IDEM, OAM, upon request and shall be subject to review and approval by IDEM, OAM. The CRP shall be prepared within ninety (90) days after issuance of this approval by the Permittee and maintained on site, and is comprised of :
    - (A) Response steps that will be implemented in the event that compliance related information indicates that a response step is needed pursuant to the requirements of Section D of this approval; and
    - (B) A time schedule for taking such response steps including a schedule for devising additional response steps for situations that may not have been predicted.
- (b) For each compliance monitoring condition of this approval, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Compliance Response Plan, shall constitute a violation of the approval unless taking the response steps set forth in the Compliance Response Plan would be unreasonable.
- (c) After investigating the reason for the excursion, the Permittee is excused from taking further response steps for any of the following reasons:
- (1) The monitoring equipment malfunctioned, giving a false reading. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.
  - (2) The Permittee has determined that the compliance monitoring parameters established in the approval conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the approval, and such request has not been denied or;
  - (3) An automatic measurement was taken when the process was not operating; or
  - (4) The process has already returned to operating within "normal" parameters and no response steps are required.

- (d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

**C.9 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5]  
[326 IAC 2-7-6]**

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- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this approval exceed the level specified in any condition of this approval, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected facility while the corrective actions are being implemented. IDEM, OAM shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAM within thirty (30) days of receipt of the notice of deficiency. IDEM, OAM reserves the authority to use enforcement activities to resolve noncompliant stack tests.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAM that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAM may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate approval conditions may be grounds for immediate revocation of the approval to operate the affected facility.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

**C.10 Monitoring Data Availability [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)]**

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- (a) With the exception of performance tests conducted in accordance with Section C- Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this approval shall be performed at all times the equipment is operating at normal representative conditions.
- (b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this approval is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this approval.
- (c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.
- (d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.

- (e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.
- (f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.11 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

- (a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAM, representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Records of required monitoring information shall include, where applicable:
  - (1) The date, place, and time of sampling or measurements;
  - (2) The dates analyses were performed;
  - (3) The company or entity performing the analyses;
  - (4) The analytic techniques or methods used;
  - (5) The results of such analyses; and
  - (6) The operating conditions existing at the time of sampling or measurement.
- (c) Support information shall include, where applicable:
  - (1) Copies of all reports required by this approval;
  - (2) All original strip chart recordings for continuous monitoring instrumentation;
  - (3) All calibration and maintenance records;
  - (4) Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Compliance Response Plan required by Section C - Compliance Monitoring Plan - Failure to take Response Steps, of this approval, and whether a deviation from an approval condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.

- (d) All record keeping requirements not already legally required shall be implemented within ninety (90) days of approval issuance.

C.12 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

- (a) The reports required by conditions in Section D of this approval shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

- (b) Unless otherwise specified in this approval, any notice, report, or other submission required by this approval shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, on or before the date it is due.
- (c) Unless otherwise specified in this approval, any quarterly or semi-annual report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (d) The first report shall cover the period commencing on the date of issuance of this approval and ending on the last day of the reporting period.

## **SECTION D.1 FACILITY OPERATION CONDITIONS**

### **Facility Description [326 IAC 2-7-5(15)]**

- (a) one (1) natural gas fired boiler with a maximum heat input capacity of 15 million British thermal units per hour (MMBtu/hr) exhausting to stack S10;

### **Emission Limitations and Standards [326 IAC 2-7-5(1)]**

#### **D.1.1 Particulate Matter Limitation (PM) [326 IAC 6-2-4]**

Pursuant to 326 IAC 6-2-4(a) (Particulate emission limitations for sources of indirect heating: emission limitations for facilities specified in 326 IAC 6-2-1 (d)), particulate emissions from the 15 million Btu per hour boiler used for indirect heating purposes which was constructed after September 21, 1983, shall in no case exceed 0.51 pounds of particulate matter per million British thermal units heat input.

#### **D.1.2 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]**

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart Dc.

### **Compliance Determination Requirements**

#### **D.1.3 Testing Requirements [326 IAC 2-1.1-11]**

The Permittee is not required to test this emissions unit by this permit. However, IDEM may require compliance testing when necessary to determine if the emissions unit is in compliance. If testing is required by IDEM, compliance with the particulate matter (PM) limit specified in Condition D.1.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

### **Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

#### **D.1.4 NSPS Record Keeping and Reporting [326 IAC 12-1][40 CFR Part 60.48c, Subpart Dc]**

The Permittee shall comply with the applicable record keeping and reporting provisions of New Source Performance Standard (NSPS) 40 CFR 60.48c, Subpart Dc, including:

- (a) Notification of the date of construction, anticipated startup, and actual startup of the boiler shall be submitted by the Permittee as provided by § 60.7; and
- (b) The Permittee shall record and maintain records of the amounts of natural gas combusted in the boiler during each month. [IDEM has reduced the daily fuel combustion records required by §60.48c(g) to monthly based on U.S. EPA policy memo on the subject dated February 20, 1992.]



## SECTION D.2 FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-7-5(15)]

- (d) a casket assembly and powder coating operation with a maximum average throughput of 120 caskets per hour and consisting of the following emission units:
- (1) four (4) metal inert gas (MIG) weld stations using a maximum of 30.1 pounds of wire per hour,
  - (2) grinding and sanding operations for welding touch up,
  - (3) one (1) natural gas fired oven, designated the Dry-off Oven, with a maximum heat input capacity of 4.4 million British thermal units per hour (MMBtu/hr) exhausting to stack S3,
  - (4) one (1) manual powder coat booth designated the Versa Coat Booth with dry filters for particulate matter control,
  - (5) two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with integral dry filters for particulate matter control,
  - (6) one (1) natural gas fired oven, designated the Quiet Oven, with a maximum heat input capacity of 8.8 million British thermal units per hour (MMBtu/hr) exhausting to stack S4,
  - (7) one (1) natural gas fired oven, designated the Bake Oven, with a maximum heat input capacity of 5.6 million British thermal units per hour (MMBtu/hr) exhausting to stack S5,
  - (8) a bed and interior assembly area with adhesive and silk screening application,
  - (9) one (1) air conditioner with an integral heating unit fired by natural gas which has a maximum heat input capacity of 560,000 Btu/hr exhausting to Stack 11, and
  - (10) one (1) humidifier fired by natural gas with a maximum heat input capacity of 476,000 Btu/hr exhausting to Stack 12.

### Emission Limitations and Standards [326 IAC 2-7-5(1)]

#### D.2.1 Particulate Matter (PM) [326 IAC 6-3]

The PM from the Powder Coat Booths 1 and 2 and the Versa Coat Booth shall not exceed the pound per hour emission rate established as E in the following formula:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour; and  
P = process weight rate in tons per hour

**D.2.2 Particulate Matter (PM) [326 IAC 6-3]**

The PM from the welding and grinding operations shall not exceed 0.551 pounds per hour, each.

**D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]**

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the Powder Coat Booths 1 and 2 and the Versa Coat Booth and their respective control devices.

**Compliance Determination Requirements**

**D.2.4 Testing Requirements [326 IAC 2-7-6(1),(6)][326 IAC 2-1.1-11]**

The Permittee is not required to test this facility by this permit. However, IDEM may require compliance testing when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.1.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

**D.2.5 Particulate Matter (PM)**

The dry filters for PM control shall be in place and controlling emissions from the Powder Coat Booths 1 and 2 and the Versa Coat Booth at all times that these facilities are in operation.

**Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

**D.2.6 Monitoring**

- (a) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters for Powder Coat Booths 1 and 2 and the Versa Coat Booth. To monitor the performance of the dry filters, weekly observations shall be made of the overspray from the coating booth exhausts while the booth observed is in operation. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when a noticeable change in overspray emission, or evidence of overspray emission is observed. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.
- (b) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

**Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

**D.2.7 Record Keeping Requirements**

- (a) To document compliance with Condition D.2.1 and D.2.6, the Permittee shall maintain a log of weekly overspray observations, daily and monthly inspections, and those additional inspections prescribed by the Preventive Maintenance Plan.
- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

## **SECTION D.3 FACILITY OPERATION CONDITIONS**

### **Facility Description [326 IAC 2-7-5(15)]**

- (f) one (1) hook burn-off oven fired by natural gas with a maximum heat input capacity of 1,000,000 Btu/hr exhausting to Stack 14.

### **Emission Limitations and Standards [326 IAC 2-7-5(1)]**

#### **D.3.1 Incineration [326 IAC 4-2-2]**

Pursuant to 326 IAC 4-2-2 (Incinerators) the hook burn-off oven shall meet the following:

- (a) consist of primary and secondary chambers or the equivalent;
- (b) be equipped with a primary burner unless burning wood products;
- (c) comply with 326 IAC 5-1 and 326 IAC IAC 2;
- (d) be maintained properly as specified by the manufacturer and approved by the commissioner;
- (e) comply with other state and/or local rules or ordinances regarding installation and operation of incinerators;
- (f) be operated so that emissions of hazardous material including, but limited to, viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;
- (g) not emit particulate matter in excess of five-tenths (0.5) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas at standard conditions corrected to fifty (50)percent excess air;
- (h) not create a nuisance or a fire hazard.

If any of the above result, the burning shall be terminated immediately.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR MANAGEMENT  
COMPLIANCE DATA SECTION**

**PART 70 SOURCE MODIFICATION  
CERTIFICATION**

Source Name: Astral Industries, Inc.  
Source Address: 7375 S. US 27, Lynn, IN 47355  
Mailing Address: P.O. Box 638, Lynn, Indiana 47355  
Source Modification No.: 135-11624-00002

**This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.**

Please check what document is being certified:

- 9 Test Result (specify) \_\_\_\_\_
- 9 Report (specify) \_\_\_\_\_
- 9 Notification (specify) \_\_\_\_\_
- 9 Other (specify) \_\_\_\_\_

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

## Indiana Department of Environmental Management Office of Air Management

### Addendum to the Technical Support Document for a Part 70 Significant Source Modification

Source Name:	Astral Industries, Inc.
Source Location:	7375 S. US 27, Lynn, IN 47355
County:	Randolph
SIC Code:	3995
Significant Source Modification No.:	135-11624-00002
Permit Reviewer:	Janusz Johnson

On March 17, 2000, the Office of Air Management (OAM) had a notice published in the *News Gazette*, Winchester, Indiana, stating that Astral Industries, Inc., had applied for a construction permit to construct and operate a casket assembly and powder coating operation with support facilities. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On April 14, 2000, Astral Industries, Inc., submitted comments on the proposed construction permit. The summary of the comments and corresponding responses is as follows (new language is bolded for emphasis):

Comment 1: Stacks S1 and S2 are stated to exhaust from Powder Coat Booths 1 and 2. Actually these stacks exhaust from the washer system and not the powder coat booths. We have no stacks exhausting from the powder coating booths nor the powder coating room which houses the booths. The integral filters on the powder booths combined with the fact that these booths are in a separate room should virtually eliminate particulate matter from escaping the building. This is the main reason that we have requested that this plant have a separate permit from our plant in town in which we spray solvent based paint products. Our goal for the new facility is to limit emissions as much as possible to maintain a cleaner environment and to reduce the overall permitting requirements. Based on this item, we would like to discuss whether we actually need the full Title V permit or if there is another option.

Response 1: The emission unit description (d)(5) on Page 1 of the Source Modification cover letter and on Pages 4 and 15 of the Source Modification permit shall be revised as follows:

(d)(5) two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with dry filters for particulate matter control ~~and exhausting at stacks S1 and S2, respectively,~~

The description in the Technical Support Document (TSD) will not be changed as it provides the basis for the changes described in this Addendum to the TSD. The following table is a revised Stack Summary based on the original table provided on Page 3 of the TSD, and the revised information:

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S1	<b>Washer System</b>	46	2.3	18,400	140
S2	<b>Washer System</b>	46	2.3	18,400	140
S3	Dry-off Oven	46	1.8	6,083	400
S4	Quiet Oven	46	1.7	4,781	400
S5	Bake Oven	46	2.2	8,510	400
S6	Cooling Tunnel Intake	42	5.0	-	-
S7	Cooling Tunnel Exhaust	46	5.0	49,714	120
S8	Cooling Tunnel Intake	42	5.0	-	-
S9	Cooling Tunnel Exhaust	42	5.0	49,714	120
S10	Boiler	46	1.8	6,030	450

To address the second part of this comment, a discussion of why the “powder coating” plant cannot be considered a separate source from the “spray solvent coating” plant located nearby is covered in the response to Comment 7.

Comment 2: Based on additional discussion with the powder booth manufacturer and the powder suppliers, we have determined a need for an air conditioning system and a humidifier for the powder coating room. The air conditioner will have an integral heating unit which has a maximum heat input capacity of 560,000 Btu/hr exhausting to Stack 11 and the humidifier will have a maximum heat input of 476,000 Btu/hr exhausting to Stack 12.

Response 2: These new emission units have been added to the facilities description (d) as Items (9) and (10) on Page 2 of the Source Modification cover letter and on Pages 4 and 15 of the Source Modification permit. The emission unit descriptions added are as follows:

**(d)(9) one (1) air conditioner with an integral heating unit fired by natural gas which has a maximum heat input capacity of 560,000 Btu/hr exhausting to Stack 11, and**

**(d)(10) one (1) humidifier fired by natural gas with a maximum heat input capacity of 476,000 Btu/hr exhausting to Stack 12.**

The equipment descriptions in the Technical Support Document (TSD) will not be changed as it provides the basis for the changes described in this Addendum to the TSD. The following table represents the Stack Summary information for the new stacks:

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S11	Air Conditioner	39	0.66 x 0.66	un-determined	350
S12	Humidifier	39	0.33	120	480

Comment 3: During internal discussions in our company, we have decided to reduce all emissions as much as possible. For this reason, we have decided to install an evaporator to reduce and/or eliminate sending wastewater to the local wastewater treatment plant. The evaporator will have a maximum heat input capacity of 100,000 Btu/hr exhausting to Stack 13.

Response 3: This new emission unit has been added to the facilities description as (e) on Page 2 of the Source Modification cover letter and on Page 4 of the Source Modification permit. The emission unit description added is as follows:

**(e) one (1) evaporator unit fired by natural gas with a maximum heat input capacity of 100,000 Btu/hr exhausting to Stack 13.**

The equipment description in the Technical Support Document (TSD) will not be changed as it provides the basis for the changes described in this Addendum to the TSD. The following table represents the Stack Summary information for the new stack:

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S13	Evaporator	46	1.17	1857	144

Comment 4: During these internal discussions, we also decided that it will be very likely that we will be adding new equipment and moving some equipment to the new facility within the first year of operation. One piece of equipment which we believe we will purchase will be a hook burn-off oven. This oven will have a maximum heat input capacity of 1,000,000 Btu/hr exhausting through Stack 14. We will also be adding additional welders and grinding stations to assist in our production.

Response 4: The new hook burn-off oven has been added to the facilities description as (f) on Page 2 of the Source Modification cover letter and on Page 4 of the Source Modification permit. The description added for this emission unit is as follows:

**(f) one (1) hook burn-off oven fired by natural gas with a maximum heat input capacity of 1,000,000 Btu/hr exhausting to Stack 14.**

The IDEM, OAM, considers paint burn-off ovens to be incinerators to which the requirements of 326 IAC 4-2-2 (Incinerators) are applicable. Therefore, the following new condition shall be added to the permit as part of a new Section D.3 (Page 17 of the revised permit) for the added burn-off oven:

**D.3.1 Incineration [326 IAC 4-2-2]**

**Pursuant to 326 IAC 4-2-2 (Incinerators) the hook burn-off oven shall meet the following:**

- (a) consist of primary and secondary chambers or the equivalent;**
- (b) be equipped with a primary burner unless burning wood products;**
- (c) comply with 326 IAC 5-1 and 326 IAC IAC 2;**
- (d) be maintained properly as specified by the manufacturer and approved by the commissioner;**

- (e) **comply with other state and/or local rules or ordinances regarding installation and operation of incinerators;**
- (f) **be operated so that emissions of hazardous material including, but limited to, viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;**
- (g) **not emit particulate matter in excess of five-tenths (0.5) pounds of particulate matter per one thousand (1,000) pounds of dry exhaust gas at standard conditions corrected to fifty (50)percent excess air;**
- (h) **not create a nuisance or a fire hazard.**

**If any of the above result, the burning shall be terminated immediately.**

The Table of Contents and pages following the new Section D.3 have been revised accordingly. The equipment description and rules analysis in the Technical Support Document (TSD) will not be changed as these provide the basis for the changes described in this Addendum to the TSD. The following table represents the Stack Summary information for the new stack:

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S14	burn-off oven	46	2.17	7315	1450

Further discussion about the welding and grinding activities indicates that one more MIG welding station will be added at this time for more production flexibility, but that the amount of wire used in the welding operations, and therefore the potential emissions, will not change. The description of the welding operations in Item (d)(1) on Page 1 of the Source Modification cover letter and on Pages 3 and 15 of the Source Modification permit shall be revised as follows to account for this change:

- (d)(1) ~~three~~ **four (4)** metal inert gas (MIG) weld stations using a maximum of 30.1 pounds of wire per hour,

The addition of more welding units or grinding units in the future may require review under 326 IAC 2-7-10.5 if the potential to emit (PTE) of the modification exceeds the applicable thresholds. These types of changes, however, may not require review if there would be no change in maximum production levels which would result in more material ground off or (i.e. an increase in PTE). The requirements for pre-construction approval for modification to a Part 70 major source are outlined in 326 IAC 2-7-10.5 (Part 70 permits; source modifications).

Comment 5: We have developed a sanding machine in house which we plan on using along our casket assembly line to improve the quality of our product. This sanding machine will be used in place of hand grinders to remove excess weld off of the corners of caskets. The total run quantities of caskets will not change.

Response 5: The emission unit description in (d)(2) on Page 1 of the Source Modification cover letter and on Pages 4 and 15 of the Source Modification permit shall be revised as follows to account for the sanding:

- (d)(2) **a grinding and sanding operations area** for welding touch up,



- Comment 6: The designer of our overall coating system has determined that we need to provide air exchange through the room which houses the washer. We will have Stack 15 for air intake to that room and Stack 16 air exhaust. These stacks will be adjustable so that the air can be pulled from either the plant atmosphere or the exterior and exhausted to either location.
- Response 6: These general ventilation stacks are not associated with any emission units and will not be listed in the permit. Their existence is, however, acknowledged and noted in this addendum.
- Comment 7: The Source Definition Section states that the sites for Plant 1 (where solvent based surface coating is performed) and our new site (where the stamping plant and our new addition are located) are contiguous. Actually the sites are approximately 1/4 mile apart separated by two landowners.
- Response 7: For the purpose of determining if multiple plant sites are considered to be one source or separate sources, the IDEM, OAM, looks at the following criteria: (1) whether or not the properties on which the plants are located are contiguous or adjacent to each other, (2) whether the plants have the same or similar (based on the first two digits) SIC codes, and (3) whether the plants are owned and operated by the same company. In the case of adjacent properties (falling within a reasonable distance of each other), an additional criteria of how much raw materials or intermediate products pass between the plants may be analyzed to determine whether the plants are truly related or not. In this case, the word "contiguous" was incorrectly used. It is more appropriate to say that the two plants are "adjacent." This does not, however, change the determination that the two plants should be considered one source because they have common ownership and control, the same SIC code and are adjacent. Both plants produce the same marketable product, finished caskets. The fact that these two plants are 1/4 mile apart is acknowledged and noted in this addendum; however, the Technical Support Document (TSD) will not be changed as it provides the basis for the discussion in this Addendum to the TSD.
- Comment 8: We are concerned that Statement (a) under the Air Pollution Control Justification Section could be misinterpreted. The "almost forty percent" recovered by the filters as stated in this section will be combined with the sixty percent which remains on the product so the total amount of powder either used or recovered is very close to one hundred percent.
- Response 8: While the statement is technically correct, it could possibly be misconstrued. To clarify, it is understood that sixty percent of the powder used in the booths adheres to the product coated and that 99.9% of the 40% overspray is prevented from escaping the booth by the dry filter controls. This captured powder is recovered and used again at a cost savings which provides incentive to operate the controls. The intent of this section of the TSD was solely to justify the classification of the controls as "integral" and was not meant to indicate the amount of powder released from the booth. A detailed calculation of the particulate matter emissions expected from the automated booths is contained on Page 7 of Appendix A of the TSD.
- Comment 9: We have discussed the VOC quantities in powder with various powder manufacturers. They have said that the powder we initially plan to use does not have VOC's. Some powders, however, do contain minimal VOC's. The total overall emission amount for the plant would still be well under the 25 ton limit. We want to make sure that we have options available under the parameters of the permit to change the type of powder we are applying.

Response 9: The change from non-VOC powder to VOC containing powder would require review under 326 IAC 2-7 before such a modification could be made to the process unless the potential to emit (PTE) volatile organic compounds (VOC) from the modification would be less than 10 tons per year (based on the source not being required to use air pollution control equipment to comply with applicable provisions of 326 IAC 8). The provisions of 326 IAC 2-7-10.5 (Part 70 permits; source modifications), 326 IAC 2-7-11 (Administrative permit amendments) and 326 IAC 2-7-12 (Permit Modification) outline the application requirements for making these types of changes.

Comment 10: IDEM noted in the Technical support document (TSD) that the dry filters are considered as an integral part of the automated powder coat booths. Astral requests that this "integral" consideration be specifically mentioned in the permit in the following locations:

Section A.2(d)(5) - "two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with integral dry filters for product recovery and particulate matter control"

Section D.2(d)(5) - "two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with integral dry filters for product recovery and particulate matter control"

The cover letter from IDEM, under item (d)(5) - "two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with integral dry filters for product recovery and particulate matter control"

Astral believes it important to specifically include the "integral" declaration and the "product recovery" declaration to clarify future applicability questions to the Compliance Assurance Monitoring (CAM) requirements, codified under 40 Code of Federal Regulations (CFR) Part 64. It is Astral's understanding that CAM will apply to those emission units that are subject to an applicable requirement, have associated pollution control equipment, and have pre-control potential emission of greater than a Title V major source threshold. CAM could apply to the Powder Coat Booths 1 and 2 since these units both have pre-controlled emissions in excess of 100 tons per year, the particulate matter Title V threshold. However, by declaring in the permit that the dry filters are integral equipment to the process for product recovery, as opposed to exclusive pollution control purposes, there will be definitive permit language declaring Powder Coat Booths 1 and 2 non-applicable to CAM.

Response 10: The emission unit description in (d)(5) on Page 1 of the Source Modification cover letter and on Pages 4 and 15 of the Source Modification permit shall be revised as follows to specify the dry filter controls on the automated powder coat booths as integral:

(d)(5) two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with **integral** dry filters for particulate matter control,

Comment 11: In Section A.3, the permit states "This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because it is a major source, as defined in 326 IAC 2-7-1(22)." Astral believes the language should be modified to declare that the source has applied for a Title V permit, but the permit has not yet been issued. Suggested language:

"This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because it is a major source, as defined in 326 IAC 2-7-1(22). The source has applied for Title V permit, but the permit has not yet been issued by IDEM."

Response 11: The language of A.3 on Page 5 of the permit states that the source is considered "Major" under the Part 70 Operating Permit program and notes the applicability of the Part 70 permit requirements. This condition is not intended to address a Permittee's current state of compliance with these requirements. The OAM acknowledges that there is a Part 70 permit application (T-135-7722-00002) for the source received on January 12, 1997, which is currently under review; however, no change will be made to A.3 as a result of this comment.

Comment 12: In Section C.6, the stacks are not from the powder booths so this section should not apply.

Response 12: Condition C.6 outlines the general requirements of 326 IAC 1-7 (Stack Height Provisions). Pursuant to 326 IAC 1-7-5(a) (Stack height provisions: exemptions and limitations), "All sources having less than twenty-five (25) tons per year of actual emissions (after controls) shall be exempt from the requirements specified in 326 IAC 1-7-3(a)." Because this source will have actual PM emissions after controls which are less than twenty-five (25) tons per year, Condition C.6 has been removed from the permit.

Note: The subsequent conditions in Section C have been renumbered as a result of this change.

Comment 13: In Section D.1.4(b), the reference to "each fuel" should be removed. Further, in Section D.1.4, the reference for monthly record keeping of fuel combustion is not correct. 40 CFR 60.48c(g) requires:

"The owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each day."

Astral appreciates that IDEM is allowing a more lenient record keeping provision of monthly fuel usage records that is consistent with recent U.S. EPA policy. However, the language in this section should be modified to appropriately characterize this change to the New Source Performance Standard condition:

"The Permittee shall record and maintain records of the amounts of natural gas combusted in the boiler during each day. IDEM is allowing that the daily natural gas combustion record be reduced to monthly, per U.S. EPA recent policy."

Response 13: Item (b) of Condition D.1.4 on Page 14 of the permit has been revised as follows to clarify that there is only one fuel and that there is a difference between the permit operating condition and the New Source Performance Standard language:

D.1.4 (b) The Permittee shall record and maintain records of the amounts of ~~each fuel~~ **natural gas** combusted in the boiler during each month. **[IDEM has reduced the daily fuel combustion records required by §60.48c(g) to monthly based on U.S. EPA policy memo on the subject dated February 20, 1992.]**

Comment 14: Astral requests that the casket assembly and powder coating operation maximum throughput be limited to the production of finished caskets, thereby providing for an allowance for units that require repair. Suggested language in the following locations of the permit:

Section A.2(d) - "a casket assembly and powder coating operation with a maximum throughput of 120 finished caskets per hour and consisting of the following emission units:"

Section D.2(d) - "a casket assembly and powder coating operation with a maximum throughput of 120 finished caskets per hour and consisting of the following emission units:"

The cover letter from IDEM, under item (d) - "a casket assembly and powder coating operation with a maximum throughput of 120 finished caskets per hour and consisting of the following emission units:"

Response 14: Facility descriptions are not permit conditions and are not federally enforceable. It is stated in Section A of the permit that facility descriptions in A.1 through A.3 are not federally enforceable. The intent of indicating a maximum throughput in the process description is to establish the basis of the potential to emit (PTE) calculations. This basis is fundamental to any permitting determinations made in the review process and provides the background for future determinations on process changes. Based on further discussions with Astral Industries, the OAM is aware that some steps in the assembly process may be capable of operating at a rate greater than 120 caskets per hour, but that the overall line is not capable of producing more than 120 caskets per hour on average. The following change to the facility description, Item (d), on Page 1 of the Source Modification cover letter and on Pages 3 and 15 of the Source Modification permit has been made for clarification:

- (d) a casket assembly and powder coating operation with a maximum **average** throughput of 120 caskets per hour and consisting of the following emission units:

Comment 15: Since no stacks exist from the powder booths, the monitoring conditions described in Section D.2.6 will consist only of the daily inspection of the dry filters.

Response 15: Condition D.2.6 on Page 16 of the permit has been revised as follows to account for the fact that the booths exhaust inside the building and do not have stacks which vent outside:

D.2.6 Monitoring

- (a) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters for Powder Coat Booths 1 and 2 and the Versa Coat Booth. To monitor the performance of the dry filters, weekly observations shall be made of the overspray from the coating booth ~~stacks exhausts~~ while ~~one or more of the booths exhausting to that stack~~ **observed** is in operation. **The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when a noticeable change in overspray emission, or evidence of overspray emission is observed.** The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.
- (b) ~~Monthly inspections shall be performed of the coating emissions from the stack and the presence of overspray on the rooftops and the nearby ground. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when a noticeable~~

~~change in overspray emission, or evidence of overspray emission is observed. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.~~

- (e)(b) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

As a result of the information provided by Astral Industries during the public notice period, some additional emission units were added to the originally proposed facilities in the permit (see Comments 2, 3 and 4). Appendix A of the TSD was revised to provide emission calculations for these new units (Pages 8 and 9 of the revised appendix) and to account for the additional emissions in the potential to emit (PTE) summary (Page 10 of the revised appendix). The following are updated "Potential To Emit of Modification" and "Potential to Emit of Modification After Issuance" analyses which include the new emission units (revised from Pages 3 and 5 of the TSD); there are no significant changes which result from the addition of the new equipment:

#### Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit. An exception in this case is the dry filters on the automated powder coating booths; they have been considered because they were determined to be integral to the process.

Pollutant	Potential To Emit (tons/year)
PM	34.2
PM-10	35.2
SO <sub>2</sub>	0.0
VOC	9.0
CO	14.0
NO <sub>x</sub>	16.6

HAP's	Potential To Emit (tons/year)
Hexane	0.2
Manganese Compounds	0.1
TOTAL	0.3

### Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

Process/facility	Potential to Emit (tons/year)						
	PM	PM-10	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs
Boiler	0.1	0.5	0.0	0.4	5.5	6.6	0.1
Heaters	0.0	0.1	0.0	0.1	0.8	0.9	0.0
Welding	0.7	0.7	0.0	0.0	0.0	0.0	0.1
Grinding	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Ovens (Dry-off, Quiet, and Bake)	0.2	0.6	0.0	0.5	6.9	8.2	0.1
Powder Coating (Versa Coat and Automated Booths)	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Gluing and Silk Screening	0.0	0.0	0.0	7.9	0.0	0.0	0.0
AC/heater, humidifier, burn-off oven, and evaporator	0.0	0.1	0.0	0.1	0.8	0.9	0.0
<b>TOTAL</b>	<b>1.8</b>	<b>2.8</b>	<b>0.0</b>	<b>9.0</b>	<b>14.0</b>	<b>16.6</b>	<b>0.3</b>
PSD Significant Threshold	25	15	40	40	100	40	-

This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

**Indiana Department of Environmental Management  
Office of Air Management**

**Technical Support Document (TSD) for a Part 70 Significant Source  
Modification.**

**Source Background and Description**

<b>Source Name:</b>	<b>Astral Industries, Inc.</b>
<b>Source Location:</b>	<b>7375 S. US 27, Lynn, IN 47355</b>
<b>County:</b>	<b>Randolph</b>
<b>SIC Code:</b>	<b>3995</b>
<b>Operation Permit No.:</b>	<b>T 135-7722-00002</b>
<b>Operation Permit Issuance Date:</b>	<b>(review pending)</b>
<b>Significant Source Modification No.:</b>	<b>135-11624-00002</b>
<b>Permit Reviewer:</b>	<b>Janusz Johnson</b>

The Office of Air Management (OAM) has reviewed a modification application from Astral Industries, Inc., relating to the construction of the following emission units and pollution control devices:

- (a) one (1) natural gas fired boiler with a maximum heat input capacity of 15 million British thermal units per hour (MMBtu/hr) exhausting to stack S10;
- (b) eight (8) natural gas fired radiant heaters with a maximum heat input capacity of 0.12 million British thermal units per hour (MMBtu/hr), each;
- (c) twelve (12) natural gas fired radiant heaters with a maximum heat input capacity of 0.10 million British thermal units per hour (MMBtu/hr), each; and
- (d) a casket assembly and powder coating operation with a maximum throughput of 120 caskets per hour and consisting of the following emission units:
  - (1) three metal inert gas (MIG) weld stations using a maximum of 30.1 pounds of wire per hour,
  - (2) a grinding area for welding touch up,
  - (3) one (1) natural gas fired oven, designated the Dry-off Oven, with a maximum heat input capacity of 4.4 million British thermal units per hour (MMBtu/hr) exhausting to stack S3,
  - (4) one (1) manual powder coat booth designated the Versa Coat Booth with dry filters for particulate matter control,
  - (5) two (2) automated powder coat booths designated Powder Coat Booths 1 and 2 with dry filters for particulate matter control and exhausting at stacks S1 and S2, respectively,

- (6) one (1) natural gas fired oven, designated the Quiet Oven, with a maximum heat input capacity of 8.8 million British thermal units per hour (MMBtu/hr) exhausting to stack S4,
- (7) one (1) natural gas fired oven, designated the Bake Oven, with a maximum heat input capacity of 5.6 million British thermal units per hour (MMBtu/hr) exhausting to stack S5, and
- (8) a bed and interior assembly area with adhesive and silk screening application.

## History

On January 12, 1997, Astral Industries submitted a Part 70 permit application to the OAM. On December 9, 1999, Astral Industries submitted an application requesting to add a powder coated casket manufacturing operation.

## Source Definition

This casket manufacturing company consists of three (3) manufacturing facilities located in Indiana:

- (a) Plant 1 (manufacturing and liquid surface coating) is located at 502 East Sherman Street, Lynn, Indiana 47355;
- (b) The Stamping Plant (manufacturing of metal casket assembly parts) is located at 7375 S. US 27, Lynn, IN 47355; and
- (c) The proposed manufacturing and powder coating operations will be located at 7375 S. US 27, Lynn, IN 47355.

Since these three (3) plants are located in contiguous properties, have the same SIC codes, are owned by one (1) company, and one plant provides a majority of its output to the other plants, they will be considered one (1) source.

## Air Pollution Control Justification as an Integral Part of the Process

The company has submitted the following justification such that the dry filters for particulate matter control be considered as an integral part of the automated powder coat booths because:

- (a) The controls are primarily utilized to recover powder that does not adhere to the parts in the coating booth. It is estimated that the dry filters will yield a recovery of almost forty percent (40%) of the powder sprayed.
- (b) The cost savings from the recovered powder is considerably greater than the cost of purchasing and maintaining the dry filters. Based on information submitted by Astral Industries, the annualized cost of the filters is \$8,400.00 per year is very small compared with the cost of the recovered powder coating which would total \$234,023.00 per year. The cost figures were based on projected actual operation.

IDEM, OAM has evaluated the justifications and agreed that the dry filters be considered as an integral part of the automated powder coat booths. Therefore, the permitting level will be determined using the potential to emit after the dry filter controls for these two (2) booths. Operating conditions in the proposed permit will specify that these dry filters shall be in place and maintained at all times when the automated powder coat booths are in operation.

## Enforcement Issue



There are no enforcement actions pending.

### Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S1	Powder Coat Booth 1	46	2.3	18,400	140
S2	Powder Coat Booth 2	46	2.3	18,400	140
S3	Dry-off Oven	46	1.8	6,083	400
S4	Quiet Oven	46	1.7	4,781	400
S5	Bake Oven	46	2.2	8,510	400
S6	Cooling Tunnel Intake	42	5.0	-	-
S7	Cooling Tunnel Exhaust	46	5.0	49,714	120
S8	Cooling Tunnel Intake	42	5.0	-	-
S9	Cooling Tunnel Exhaust	42	5.0	49,714	120
S10	Boiler	46	1.8	6,030	450

### Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on December 9, 1999. Additional information was received on February 4 and February 17, 2000.

### Emission Calculations

See Appendix A of this document for detailed emissions calculations (8 pages).

### Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit. An exception in this case is the dry filters on the automated powder coating booths; they have been considered because they were determined to be integral to the process.

Pollutant	Potential To Emit (tons/year)
PM	34.2
PM-10	34.2
SO <sub>2</sub>	0.0
VOC	15.7
CO	13.2
NO <sub>x</sub>	8.9

HAP's	Potential To Emit (tons/year)
Hexane	0.2
Manganese Compounds	0.1
TOTAL	0.3

### Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 10.5(f)(4) because the potential to emit (PTE) particulate matter (PM), and particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM-10), is greater than 25 tons per year.

### County Attainment Status

The source is located in Randolph County.

Pollutant	Status
PM-10	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) are precursors for the formation of ozone. Therefore, VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the ozone standards. Randolph County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Randolph County has been classified as attainment or unclassifiable for all other regulated air pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

## Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	0.0
PM-10	0.0
SO <sub>2</sub>	0.0
VOC	1192
CO	0.0
NO <sub>x</sub>	0.0

- (a) This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) These emissions are based upon the Airs Facility Quick Look Report dated January 22, 1999.

## Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

Process/facility	Potential to Emit (tons/year)						
	PM	PM-10	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs
Boiler	0.1	0.5	0.0	0.4	5.5	6.6	0.1
Heaters	0.0	0.1	0.0	0.1	0.8	0.9	0.0
Welding	0.7	0.7	0.0	0.0	0.0	0.0	0.1
Grinding	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Ovens (Dry-off, Quiet, and Bake)	0.2	0.6	0.0	0.5	6.9	8.2	0.1
Powder Coating (Versa Coat and Automated Booths)	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Gluing and Silk Screening	0.0	0.0	0.0	7.9	0.0	0.0	0.0
<b>TOTAL</b>	<b>1.8</b>	<b>2.7</b>	<b>0.0</b>	<b>8.9</b>	<b>13.2</b>	<b>15.7</b>	<b>0.3</b>
PSD Significant Threshold	25	15	40	40	100	40	-

This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40

CFR 52.21, the PSD requirements do not apply.

### Federal Rule Applicability

- (a) The 15 million British thermal units per hour (MMBtu/hr) natural gas fired boiler is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.40c, Subpart Dc) because construction will be after June 9, 1989 and it has a maximum design heat input capacity which is 100 MMBtu/hr or less, but greater than 10 MMBtu/hr. Pursuant to § 60.48c the following requirements are applicable:
  - (1) the owner or operator shall submit notification of the date of construction, anticipated startup, and actual startup as provided by § 60.7; and
  - (2) the owner or operator shall record and maintain records of the amounts of each fuel combusted during each month.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

### State Rule Applicability

#### 326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit more than one hundred (100) tons per year of VOC. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

#### 326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Visible Emissions Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), visible emissions shall meet the following, unless otherwise stated in this permit:

- (a) Visible emissions shall not exceed an average of forty percent (40%) opacity in twenty-four (24) consecutive readings as determined by 326 IAC 5-1-4,
- (b) Visible emissions shall not exceed sixty percent (60%) opacity for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) in a six (6) hour period.

#### 326 IAC 6-2-4 (Particulate emission limitations for sources of indirect heating)

Particulate emissions from indirect heating facilities constructed after September 21, 1983 shall be limited by the following equation:

$$Pt = 1.09/Q^{0.26} \quad \text{where: } Q = \text{total source maximum operating capacity rating in million Btu per hour (MMBtu/hr) heat input.}$$

$Pt =$  Pounds of particulate matter emitted per million Btu heat input.

The total Q for the source, including indirect heating facilities at the Plant 1 and Stamping Plant locations and the proposed 15 MMBtu/hr boiler, is 18.2 MMBtu/hr; therefore, particulate emissions from the 15 MMBtu/hr boiler are limited by the above equation to 0.51 pounds per MMBtu heat input.

The PM emission factor for the 15 MMBtu/hr natural gas fired boiler is 1.9 pounds per million cubic feet (MMCF) of gas combusted. Based on an average fuel heat content of 1000 MMBtu per MMCF, the calculated PM emission rate in pounds per MMBtu for the boiler is:

$$\begin{aligned}\text{PM (lb/MMBtu)} &= 1.9 \text{ lb PM/MMCF} * 1 \text{ MMCF/1000 MMBtu} \\ &= 0.0019 \text{ lb/MMBtu}\end{aligned}$$

The boiler can comply with the rule.

**326 IAC 6-3-2 (Process Operations)**

The particulate matter (PM) from the powder coating booths (Versa Coat, Powder Coat 1 and Powder Coat 2) shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

To comply with this limit, the dry filters shall be in place and operable at all times the powder coating booths are in operation.

The particulate matter (PM) from the welding and grinding operations shall be limited to 0.551 pounds per hour based on the process weight rates (welding rod usage and amount of metal ground, respectively) for these processes are each less than 100 pounds per hour. The uncontrolled particulate emissions from both of these processes are estimated to be below the limit; therefore, the welding and grinding operations can comply with this rule.

**326 IAC 8-2-9 (Miscellaneous Metal Coating)**

Pursuant to 326 IAC 8-2-9(b)(10) this rule is not applicable to the application of coatings to burial caskets if the source is not located in or adjacent to a county designated as nonattainment for ozone. Randolph County is not, nor located adjacent to, an ozone nonattainment county.

**326 IAC 8-1-6 (BACT)**

There are no potential volatile organic compound (VOC) emissions from the powder coating operations, and the potential VOC emissions from the gluing and silk screening operations is less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 do not apply to these facilities.

No other 326 IAC 8 rules apply.

**Compliance Requirements**

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

1. The powder coating booths have applicable compliance monitoring conditions as specified below:
  - (a) Daily inspections to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, daily observations shall be made of the overspray while one or more of the booths are in operation.
  - (b) Weekly inspections of the coating emissions from the stack and the presence of overspray on the rooftops and the nearby ground.

These monitoring conditions are necessary ensure compliance with 326 IAC 6-3-2 (Process Operations).

## **Conclusion**

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 135-11624-00002.

## Appendix A: Emissions Calculations

### Natural Gas Combustion Only

MM BTU/HR <100

### Small Industrial Boiler

Company Name: Astral Industries, Inc.

Address City IN Zip: 7375 S. US 27, Lynn, IN 47355

CP: 135-11624

Plt ID: 135-00032

Reviewer: Janusz Johnson

Date: February 8, 2000

### Boiler - 15 MMBtu/hr

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

15.0

131.4

Pollutant						
Emission Factor in lb/MMCF	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
				**see below		
Potential Emission in tons/yr	0.1	0.5	0.0	6.6	0.4	5.5

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

### Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations**

Page 2 of 10 TSD App A

**Natural Gas Combustion Only**

**MM BTU/HR <100**

**Small Industrial Boiler**

**HAPs Emissions**

**Company Name:** Astral Industries, Inc.

**Address City IN Zip:** 7375 S. US 27, Lynn, IN 47355

**CP:** 135-11624

**Plt ID:** 135-00032

**Reviewer:** Janusz Johnson

**Date:** February 8, 2000

**Boiler - 15 MMBtu/hr**

**HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.380E-04	7.884E-05	4.928E-03	1.183E-01	2.234E-04

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	3.285E-05	7.227E-05	9.198E-05	2.497E-05	1.380E-04

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.  
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

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## Appendix A: Emissions Calculations

### Natural Gas Combustion Only

MM BTU/HR <100

### Small Industrial Boiler

Company Name: Astral Industries, Inc.

Address City IN Zip: 7375 S. US 27, Lynn, IN 47355

CP: 135-11624

Plt ID: 135-00032

Reviewer: Janusz Johnson

Date: February 8, 2000

### New building heaters: eight (8) 120,000 Btu/hr radiant heaters and twelve (12) 100,000 Btu/hr radiant heaters

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

2.2

18.9

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.0	0.1	0.0	**see below	0.1	0.8

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

### Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations**

Page 6 of 10 TSD App A

**Natural Gas Combustion Only**

**MM BTU/HR <100**

**Small Industrial Boiler**

**HAPs Emissions**

**Company Name:** Astral Industries, Inc.

**Address City IN Zip:** 7375 S. US 27, Lynn, IN 47355

**CP:** 135-11624

**Plt ID:** 135-00032

**Reviewer:** Janusz Johnson

**Date:** February 8, 2000

**New building heaters: eight (8) 120,000 Btu/hr radiant heaters and twelve (12) 100,000 Btu/hr radiant heaters**

**HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.987E-05	1.135E-05	7.096E-04	1.703E-02	3.217E-05

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	4.730E-06	1.041E-05	1.325E-05	3.595E-06	1.987E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.  
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

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## Appendix A: Emissions Calculations

### Natural Gas Combustion Only

MM BTU/HR <100

### Small Industrial Boiler

Company Name: Astral Industries, Inc.

Address City IN Zip: 7375 S. US 27, Lynn, IN 47355

CP: 135-11624

Plt ID: 135-00032

Reviewer: Janusz Johnson

Date: May 3, 2000

\*\*\*\* Additional combustion units added after public notice: \*\*\*\*

air conditioner/heater 0.56 MMBtu/hr, humidifier 0.476 MMBtu/hr, evaporator 0.1 MMBtu/hr, burn-off oven 1.0 MMBtu/hr

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

2.1

18.7

### Pollutant

Emission Factor in lb/MMCF	PM*	PM10*	SO2	NOx	VOC	CO
				100.0		
				**see below		
Potential Emission in tons/yr	0.0	0.1	0.0	0.9	0.1	0.8

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

## Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations**

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**Natural Gas Combustion Only****MM BTU/HR <100****Small Industrial Boiler****HAPs Emissions****Company Name: Astral Industries, Inc.****Address City IN Zip: 7375 S. US 27, Lynn, IN 47355****CP: 135-11624****Plt ID: 135-00032****Reviewer: Janusz Johnson****Date: May 3, 2000****air conditioner/heater 0.56 MMBtu/hr, humidifier 0.476 MMBtu/hr, evaporator 0.1 MMBtu/hr, burn-off oven 1.0 MMBtu/hr****HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.965E-05	1.123E-05	7.017E-04	1.684E-02	3.181E-05

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	4.678E-06	1.029E-05	1.310E-05	3.555E-06	1.965E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.  
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

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## Appendix A: Emissions Calculations

### Natural Gas Combustion Only

MM BTU/HR <100

#### Small Industrial Boiler

Company Name: Astral Industries, Inc.

Address City IN Zip: 7375 S. US 27, Lynn, IN 47355

CP: 135-11624

Plt ID: 135-00032

Reviewer: Janusz Johnson

Date: February 8, 2000

**Powder coat process ovens: dryoff oven - 4.4 MMBtu/hr, quiet oven - 8.8 MMBtu/hr, bake oven - 5.6 MMBtu/hr**

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

18.8

164.7

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.2	0.6	0.0	**see below	0.5	6.9

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

### Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations****Natural Gas Combustion Only****MM BTU/HR <100****Small Industrial Boiler****HAPs Emissions****Company Name: Astral Industries, Inc.****Address City IN Zip: 7375 S. US 27, Lynn, IN 47355****CP: 135-11624****Plt ID: 135-00032****Reviewer: Janusz Johnson****Date: February 8, 2000****Powder coat process ovens: dryoff oven - 4.4 MMBtu/hr, quiet oven - 8.8 MMBtu/hr, bake oven - 5.6 MMBtu/hr****HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.729E-04	9.881E-05	6.176E-03	1.482E-01	2.800E-04

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	4.117E-05	9.058E-05	1.153E-04	3.129E-05	1.729E-04

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.

## Appendix A: Emissions Calculations

### Natural Gas Combustion Only

MM BTU/HR <100

#### Small Industrial Boiler

Company Name: Astral Industries, Inc.

Address City IN Zip: 7375 S. US 27, Lynn, IN 47355

CP: 135-11624

Plt ID: 135-00032

Reviewer: Janusz Johnson

Date: February 8, 2000

**Powder coat process ovens: dryoff oven - 4.4 MMBtu/hr, quiet oven - 8.8 MMBtu/hr, bake oven - 5.6 MMBtu/hr**

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

18.8

164.7

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.2	0.6	0.0	**see below	0.5	6.9

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

### Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations****Natural Gas Combustion Only****MM BTU/HR <100****Small Industrial Boiler****HAPs Emissions****Company Name: Astral Industries, Inc.****Address City IN Zip: 7375 S. US 27, Lynn, IN 47355****CP: 135-11624****Plt ID: 135-00032****Reviewer: Janusz Johnson****Date: February 8, 2000****Powder coat process ovens: dryoff oven - 4.4 MMBtu/hr, quiet oven - 8.8 MMBtu/hr, bake oven - 5.6 MMBtu/hr****HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.729E-04	9.881E-05	6.176E-03	1.482E-01	2.800E-04

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	4.117E-05	9.058E-05	1.153E-04	3.129E-05	1.729E-04

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.



**Appendix A: Emissions Calculations**  
**Powder Coating Operations and Assembly Process Steps**  
**Particulate Matter and Volatile Organic Compound Emissions**

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**Company Name:** Astral Industries, Inc.  
**Address City IN Zip:** 7375 S. US 27, Lynn, IN 47355  
**CP:** 135-11624  
**Plt ID:** 135-00032  
**Reviewer:** Janusz Johnson  
**Date:** February 21, 2000

**Powder Coating (total maximum of 2.0 pounds powder used per casket, 120 casket per hour)**

Versa Coat Booth (manual reinforcement approximated by 10 sqft/130 sqft per casket)

Potential emissions without dry filters = maximum powder delivery rate (lbs/hr) x (1-transfer eff.) x 1 ton/2000 pounds x 8760 hours operation/yr  
  
= 18.5 lb/hr x (1-0.60) x 1 ton/2000 lbs x 8760 hrs/yr  
  
**PTE = 32.4 tons/yr** ((After controls (99.9%) => 0.03 tons/yr))

Automated Powder Coat Booths (2)

Potential emissions without dry filters = maximum powder delivery rate (lbs/hr) x (1-transfer eff.) x 1 ton/2000 pounds x 8760 hours operation/yr  
  
= 221.5 lb/hr x (1-0.60) x 1 ton/2000 lbs x 8760 hrs/yr  
  
= 388.1 tons/yr

The Potential to Emit (PTE) of the automated booths shall be calculated after controls based on the determination that the dry filters are integral to the powder coating operation. The controls in this case are considered integral to the process because they are primarily utilized to recover powder that does not adhere to the parts in the coating booth. The cost savings from the recovered powder is considerably greater than the cost of purchasing and maintaining the dry filters. It is estimated that the dry filters will yield a recovery of almost forty percent (40%) of the powder sprayed.

Potential emissions with dry filters = Potential emissions before controls x (1 - control efficiency)  
  
= 388.1 tons/yr x (1-0.999)  
  
**PTE = 0.4 tons/yr**

**Total PTE for the powder coating and versa coating booths combined = 32.8 tons per year**

**Welding**

three (3) MIG welders consuming a total of 0.251 pound of wire per casket; and

120 caskets/hr \* 0.251 lb/casket = 30.12 lbs wire used per hour

default emission factors -> 0.0055 lb PM per lb electrode, 0.0005 lb Mn per lb electrode

30.12 pounds wire/hr \* 0.0055 lb PM/lb wire = 0.17 lbs PM/hr  
\* 24 hrs/day = 3.98 lbs PM/day  
\* 365 days/yr \* 1 ton/2000 lbs = **0.73 tons PM/yr**

30.12 pounds wire/hr \* 0.0005 lb Mn/lb wire = 0.02 lbs Mn/hr  
\* 24 hrs/day = 0.36 lbs Mn/day  
\* 365 days/yr \* 1 ton/2000 lbs = **0.07 tons Mn/yr**

**Grinding**

Based on a maximum process rate of 120 caskets fabricated per hour, estimated grinding of 0.064 pounds of metal per casket to touch up the parts welded, and an estimated 1% of grindings emitted as particulate:

120 part/hr \* 0.064 lbs ground/part \* 0.01 lb PM/lb ground = 0.08 lbs PM/hr  
\* 24 hrs/day = 1.84 lbs PM/day  
\* 365 days/yr \* 1 ton/2000 lbs = **0.34 tons PM/yr**

**Adhesives and Silk Screening**

The maximum amount of glue used on any casket is on full couch models which have 0.4225 pounds of glue per casket. The glue has 0.68% VOCs. This type of casket is less than 10% of the total product mix, but as a worst case estimate it will be assumed that all caskets made are of this type.

120 caskets/hour \* 0.4225 lb glue/casket \* 0.0068 lb VOC/lb glue = 0.34 lbs VOC/hr  
\* 24 hrs/day = 8.27 lbs VOC/day  
\* 365 days/yr \* 1 ton/2000 lbs = 1.51 tons VOC/yr

The maximum amount of silk screen material used per casket is 0.0024 gallons of material. The material weighs 6.4 pounds per gallon and has a VOC content of 79.7% by weight. The model which uses silk screen is currently less than 4% of the total product mix, but a worst case estimate will be made by assuming that all caskets made are of this type.

120 caskets/hour \* 0.0024 gal material/casket \* 6.4 lb/gal \* 0.797 lb VOC/lb material = 1.47 lbs VOC/hr  
\* 24 hrs/day = 35.26 lbs VOC/day  
\* 365 days/yr \* 1 ton/2000 lbs = 6.43 tons VOC/yr

Total VOC PTE for worst case gluing and screening:  
1.51 tons VOC/yr from gluing  
6.43 tons VOC/yr from screening  
**7.94 tons VOC/yr**

**Appendix A: Emissions Calculations**  
**Potential to Emit Summary for Proposed Modification**

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**Company Name:** Astral Industries, Inc.  
**Address City IN Zip:** 7375 S. US 27, Lynn, IN 47355  
**CP:** 135-11624  
**Plt ID:** 135-00032  
**Reviewer:** Janusz Johnson  
**Date:** February 21, 2000 (Revised May 3, 2000)

**Potential to Emit Summary for Proposed Modification (Includes integral controls)**

Facility	Pollutant PTE (Ton/yr)						HAPs	
	PM	PM10	SO2	NOx	VOC	CO	Mn	Hexane
Boiler	0.1	0.5	0.0	6.6	0.4	5.5	0.0	0.1
Heaters	0.0	0.1	0.0	0.9	0.1	0.8	0.0	0.0
Welding	0.7	0.7	0.0	0.0	0.0	0.0	0.1	0.0
Grinding	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Ovens	0.2	0.6	0.0	8.2	0.5	6.9	0.0	0.1
Powder Coating	32.8	32.8	0.0	0.0	0.0	0.0	0.0	0.0
Gluingscreening	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0
misc. combustion units *: AC/heater, humidifier, burn-off oven, and evaporator	0.0	0.1	0.0	0.9	0.1	0.8	0.0	0.0
<b>TOTAL</b>	<b>34.2</b>	<b>35.2</b>	<b>0.0</b>	<b>16.6</b>	<b>9.0</b>	<b>14.0</b>	<b>0.1</b>	<b>0.2</b>

\* these units were added as a result of comments received during the public notice period

**PSD Potential to Emit Summary (Includes all federally enforceable controls)**

Facility	Pollutant PTE (Ton/yr)						HAPs	
	PM	PM10	SO2	NOx	VOC	CO	Mn	Hexane
Boiler	0.1	0.5	0.0	6.6	0.4	5.5	0.0	0.1
Heaters	0.0	0.1	0.0	0.9	0.1	0.8	0.0	0.0
Welding	0.7	0.7	0.0	0.0	0.0	0.0	0.1	0.0
Grinding	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Ovens	0.2	0.6	0.0	8.2	0.5	6.9	0.0	0.1
Powder Coating	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Gluingscreening	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0
misc. combustion units *: AC/heater, humidifier, burn-off oven, and evaporator	0.0	0.1	0.0	0.9	0.1	0.8	0.0	0.0
<b>TOTAL</b>	<b>1.8</b>	<b>2.8</b>	<b>0.0</b>	<b>16.6</b>	<b>9.0</b>	<b>14.0</b>	<b>0.1</b>	<b>0.2</b>

\* these units were added as a result of comments received during the public notice period